

**WHAT IS CLAIMED IS:**

1. A liquid crystal display device, comprising:  
first and second panels facing each other;  
5 a compensation film and a first polarizer disposed on the first panel, the compensation film having phase retardation characteristics; and  
a second polarizer having a supporting film disposed on the second panel, the supporting film having phase retardation characteristics.
- 10 2. The liquid crystal display device as in claim 1, further comprising a liquid crystal layer for housing liquid crystals disposed between the first and the second panels.
3. The liquid crystal display device as in claim 1, wherein the first polarizer includes a first supporting film and the phase retardation of the first supporting film  
15 combined with the compensation film ranges about 130 nm to about 160 nm in the vertical direction.
4. The liquid crystal display device as in claim 1, wherein the phase retardation of the supporting film of the second polarizer ranges about 0 nm to about 5 nm  
20 in the horizontal direction and about 100 nm to about 140 nm in the vertical direction.



5. The liquid crystal display device as in claim 3, wherein the phase retardation of the compensation film ranges about 40 nm to about 60 nm in the horizontal direction and about 80 nm to about 100 nm in the vertical direction, and the phase retardation of the first supporting film ranges about 0 nm to about 5 nm in the horizontal  
5 direction and about 50 nm to about 60 nm in the vertical direction.

6. The liquid crystal display device as in claim 2, wherein the liquid crystals are aligned in a vertical alignment mode.

10 7. The liquid crystal display device as in claim 1, wherein the polarizers include a polarizing medium made of polyvinyl alcohol (PVA).

8. The liquid crystal display device as in claim 1, wherein the supporting films are made of triacetate cellulose (TAC) or cellulous acetate propionate (CAP).

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9. The liquid crystal display device as in claim 7, wherein an elongation direction for the polarizing medium having zero value of phase retardation in the horizontal direction is the same direction with an absorption axis of the polarizer disposed on the first panel.

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10. The liquid crystal display device as in claim 7, wherein the compensation film is laminated perpendicular to the elongation direction of the polarizing medium.



11. The liquid crystal display device as in claim 1, wherein the compensation film is a thin film having different values for  $N_x$ ,  $N_y$ , and  $N_z$  wherein  $N_x$  denotes the refractive index in the direction of major axis,  $N_y$  denotes the refractive index in the direction of minor axis, and  $N_z$  denotes the refractive index in the direction perpendicular to the major and minor axis.

12. A liquid crystal display device, comprising:  
first and second panels facing each other; and  
a first polarizer having a first supporting film disposed on the first panel and a second polarizer having a second supporting film disposed on the second panel, wherein the supporting films disposed on the first panel and the second panel have phase retardation characteristics.

13. The liquid crystal display device as in claim 12, further comprising a liquid crystal layer for housing liquid crystals disposed between the first and the second panels.

14. The liquid crystal display device as in claim 12, wherein phase retardation of the first supporting film ranges about 40 nm to about 60 nm in the horizontal direction and about 120 nm to about 160 nm in the vertical direction, and phase retardation of the second supporting film ranges about 0 nm to about 5 nm in the horizontal direction and about 100 nm to about 140 nm in the vertical direction.



15. The liquid crystal display device as in claim 12, wherein the phase retardation of each of the first and second supporting films ranges about 40 nm to about 60 nm in the horizontal direction and about 120 nm to about 160 nm in the vertical direction.

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16. The liquid crystal display device as in claim 12, wherein the phase retardation of the first supporting film ranges about 50 nm to about 70 nm in the horizontal direction and about 210 nm to about 250 nm in the vertical direction, and the phase retardation of the second supporting film ranges about 0 nm to about 5 nm in the horizontal direction and about 50 nm to about 60 nm in the vertical direction.

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17. The liquid crystal display device as in claim 13, wherein the liquid crystals are aligned in a vertical alignment mode.

18. The liquid crystal display device as in claim 12, wherein the polarizers include a polarizing medium made of polyvinyl alcohol (PVA).

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19. The liquid crystal display device as in claim 18, wherein an elongation direction for the polarizing medium having zero value of phase retardation in the horizontal direction is the same direction with an absorption axis of the polarizer disposed on the first panel.

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20. The liquid crystal display device as in claim 12, wherein supporting films are thin films having different values for  $N_x$ ,  $N_y$ , and  $N_z$  wherein  $N_x$  denotes the refractive index in the direction of major axis,  $N_y$  denotes the refractive index in the direction of minor axis, and  $N_z$  denotes the refractive index in the direction perpendicular to the major and minor axis.

21. The liquid crystal display device as in claim 12, wherein an elongation direction for the supporting film having non-zero value of phase retardation in the horizontal direction is the same direction with a phase retardation axis of the supporting film and perpendicular to the absorption axis of the polarizer disposed on the first panel.

22. A method of forming panels in a liquid crystal display device, comprising:  
positioning first and second panels to face each other;  
disposing a first polarizer having a first supporting film on the first panel; and  
disposing a second polarizer having a second supporting film on the second panel,  
wherein the supporting films disposed on the first panel and the second panel have phase retardation characteristics.

23. The method as in claim 22, further comprising disposing a liquid crystal layer for housing liquid crystals between the first and the second panels.



24. The method as in claim 22, wherein the phase retardation of the first supporting film ranges about 40 nm to about 60 nm in the horizontal direction and about 120 nm to about 160 nm in the vertical direction, and phase retardation of the second supporting film ranges about 0 nm to about 5 nm in the horizontal direction and about 100  
5 nm to about 140 nm in the vertical direction.

25. The method as in claim 22, wherein the phase retardation of each of the first and second supporting films ranges about 40 nm to about 60 nm in the horizontal direction and about 120 nm to about 160 nm in the vertical direction.  
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26. The method as in claim 22, wherein the phase retardation of the first supporting film ranges about 50 nm to about 70 nm in the horizontal direction and about 210 nm to about 250 nm in the vertical direction, and the phase retardation of the second supporting film ranges about 0 nm to about 5 nm in the horizontal direction and about 50  
15 nm to about 60 nm in the vertical direction.

27. The method as in claim 23, wherein the liquid crystals are aligned in a vertical alignment mode.

28. The method as in claim 22, wherein the polarizers include a polarizing medium made of polyvinyl alcohol (PVA).  
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29. The method as in claim 28, wherein an elongation direction for the polarizing medium having zero value of phase retardation in the horizontal direction is the same direction with an absorption axis of the polarizer disposed on the first panel.

5 30. The method as in claim 22, wherein the supporting films are thin films having different values for  $N_x$ ,  $N_y$ , and  $N_z$  wherein  $N_x$  denotes the refractive index in the direction of major axis,  $N_y$  denotes the refractive index in the direction of minor axis, and  $N_z$  denotes the refractive index in the direction perpendicular to the major and minor axis.

10 31. The method as in claim 22, wherein an elongation direction for the supporting film having non-zero value of phase retardation in the horizontal direction is the same direction with a phase retardation axis of the supporting film and perpendicular to the absorption axis of the polarizer disposed on the first panel.

15 32. A method of forming panels in a liquid crystal display device, comprising:  
positioning first and second panels to face each other;  
disposing a compensation film and a first polarizer on the first panel, the compensation film having phase retardation characteristics; and  
disposing a second polarizer having a supporting film on the second panel, the supporting  
20 film having phase retardation characteristics.

33. The method as in claim 32, further comprising disposing a liquid crystal layer for housing liquid crystals between the first and the second panels.



34. The method as in claim 32, wherein the first polarizer includes a first supporting film and the phase retardation of the first supporting film combined with the compensation film ranges about 130 nm to about 160 nm in the vertical direction.

5 35. The method as in claim 32, wherein the phase retardation of the supporting film of the second polarizer ranges about 0 nm to about 5 nm in the horizontal direction and about 100 nm to about 140 nm in the vertical direction.

36. The method as in claim 34, wherein the phase retardation of the  
10 compensation film ranges about 40 nm to about 60 nm in the horizontal direction and about 80 nm to about 100 nm in the vertical direction, and the phase retardation of the first supporting film ranges about 0 nm to about 5 nm in the horizontal direction and about 50 nm to about 60 nm in the vertical direction.

15 37. The method as in claim 33, wherein the liquid crystals are aligned in a vertical alignment mode.

38. The method as in claim 32, wherein the polarizers include a polarizing medium made of polyvinyl alcohol (PVA).

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39. The method as in claim 32, wherein the supporting films are made of triacetate cellulose (TAC) or cellulous acetate propionate (CAP).



40. The method as in claim 38, wherein an elongation direction for the polarizing medium having zero value of phase retardation in the horizontal direction is the same direction with an absorption axis of the polarizer disposed on the first panel.

5 41. The method as in claim 38, wherein the compensation film is laminated perpendicular to the elongation direction of the polarizing medium.

42. The method as in claim 38, wherein the compensation film is a thin film having different values for  $N_x$ ,  $N_y$ , and  $N_z$  wherein  $N_x$  denotes the refractive index in the  
10 direction of major axis,  $N_y$  denotes the refractive index in the direction of minor axis, and  $N_z$  denotes the refractive index in the direction perpendicular to the major and minor axis.